nant sarcoma or carcinoma in man is between five and seven erythema doses of filtered roentgen ray when the tumor is on the surface of the body. Every centimeter of tissue that covers the tumor makes an additional amount of roentgen ray necessary. For example, when slices of fibroid tumor are used as absorptive material the galvanometer deflections show that at a depth of 2 cm. 19 per cent. more roentgen ray is required; at 5 cm. depth, 47 per cent. more; at 10 cm. depth, 65 per cent. more. While many tumor cells may possibly be slowed in their progress and mitotic forms killed at such depths, it is doubtful whether all can be destroyed. The basal-cell tumors and the lymphosarcomata are, as is well known, much more susceptible to radiation. Small, superficial, metastatic carcinomata are also, in some instances, more susceptible than is the primary tumor.

OPHTHALMOLOGY

UNDER THE CHARGE OF
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Keratitis Profunda or Disciformis.—VERHOEFF (*Arch. Ophthal.*, September, 1919, p. 449), in reporting an instance of this affection with microscopic examination, concludes that disciform keratitis may be produced by a variety of causes, and from an etiological standpoint is therefore not an entity. Certain cases are of the same nature as keratitis profunda. The corneal changes in the latter affection are due to the action of diffusible toxic substances arising near the anterior surface. The changes consist in alteration of the epithelium, destruction of the corneal corpuscles and injury to the stroma in the anterior layers of the cornea, and proliferation of the corneal corpusele behind and around the injured area. In addition, there is injury to, or destruction of the endothelium, and in severe cases, deposition of fibrin and leukocytes on Descemet's membrane, behind the affected area. Leukocytic infiltration of the corneal stroma is conspicuously absent. The microscopic findings in the case reported strongly indicate a neuropathic origin for keratitis profunda.

Loss of Vision of One Eye Without Appreciable Organic Lesions Consecutive to a Shell Wound of the Other Eye.—LAPERSONNE (*Arch. d'ophtal.*, xxxvi, 639) reports the case of a soldier, aged forty-five years, who was wounded by a shell in the left eye with consecutive cataract and loss of vision of this eye. Subsequently the right eye developed marked functional disturbances, not due to sympathetic ophthalmia. Complete blindness supervened. Two years later, no lesion of the fun-

dus could be demonstrated; the pupil reacted normally; there is present depression of the visual line accompanied by immobility of convergence of both eyes. Morax and Souques also examined the case: they agreed in the diagnosis of blindness without appreciable organic lesion. The question of simulation was considered; but the patient under strict surveillance at the Hôtel-Dieu for eighteen days, constantly maintained the eye in the position noted. In spite of some doubt, the reporter recommended full pension for complete blindness of both eyes.

Gunn's Syndrome: Associated Movements of the Upper Lid with those of the Jaw.—Amat (*Annal. d'ocul.*, September, 1919, p. 513) concludes that the syndrome is suggested physiologically in some healthy persons who open their mouths simultaneously with their eyes. Normally the superior branch of the motor oculi contains fibers derived from the motor portion of the trigeminus, indicating a functional synergy. In animals which keep the palpebral commissure open while eating, there must be anastomoses to assure such synergy. Although the functions of these fibers in man are unimportant or rudimentary, it may happen that in ptosis of the lids, their power develops and even surpasses the normal limits, constituting an additional function rather than a synergy. The junction of these fibers from the fifth nerve with the third must take place at the periphery; there must also be peripheral liaison between the fifth and seventh, third and fourth, third and sixth cranial nerves and between the latter and the sympathetic. The superior branch of the motor oculi frequently receives, in the orbit, a filament from the ophthalmic nerve or its nasal branch; although this may contain, as is probable, no motor fibers, it strongly suggests the possibility of other anastomoses, motor in this case, between the trigeminal and third nerves. The above hypothesis explains (1) cases in which the syndrome is present without ptosis, both congenital and acquired; (2) its coincidence with palsies of the levator whether of cortical, subcortical, nuclear or funicular origin (the third nerve contains no filaments from the motor portion of the trigeminal which reach it in the orbit or its neighborhood); (3) the cure sometimes is obtained by training isolated movements of the lids by the will and thus frees the connection which unites the movements of the latter to those of mastication.

Traumatic Cataract after War Injuries.—Poulard (*Annal. d'ocul.*, October, 1919, p. 621) reports 55 cases all submitted to late operations. Thirty-eight followed wounds of the eye, the remainder contusions; the results were least favorable in the first class. In 4 cases the vision was nil or nearly so; in 13 from $\frac{1}{50}$ to $\frac{1}{20}$; in 13 from $\frac{1}{10}$ to $\frac{1}{5}$; in 24 from $\frac{1}{4}$ to 1. Their unsatisfactory results as regards visual acuity were dependent upon lesions of the fundus.

Papillary Stasis and Dilatation of the Ventricles in Cerebral Tumor.—Papillary stasis may be caused by lesions of very diverse natures and seat, but whatever the lesion, the stasis is always the result of intracranial hypertension, of which in fact, it is the capital symptom. Based upon anatomo-clinical studies of 27 cases, for the most part unpublished, Bollack (*Paris Thesis*, 1919, *Arch. d'ophtal.*, September–October,

1919, p. 701) has shown the constant occurrence of dilatation of the third ventricle in papillary stasis. Tumors of the posterior region are almost constantly accompanied by dilatation of the ventricles, either localized in the third or present in all. In tumors of the convexity, the dilatation is not constantly present; when it is, it is localized in the third ventricle. The latter, accordingly, appears to play an important role in the apparition of papillary stasis; distention of one or both lateral ventricles is only accompanied by papillary stasis when the third ventricle is also dilated. Dilatation of the lateral ventricles takes place through the foramina of Munro. Dilatation of the ventricles in the course of cerebral tumors is consequent upon perturbations in the secretion, absorption and especially drainage of the cephalorachidian fluid from the ventricular cavities to the subarachnoid space; hypertension, then dilatation of the ventricles. Papillary stasis is well-nigh constant in ependymititis and serous meningitis, so-called internal hydrocephalus; in these cases there is also ventricular distention. On the other hand in affections which but rarely cause distention, such as cranial traumatisms, tuberculous, syphilitic or cerebrospinal meningitis, papillary stasis is inconstant. Certain other systems found in cerebral tumors bespeak the occurrence of hypertension of the ventricular fluid and the distention which results therefrom, such as hypophyseal syndromes and alterations of the sella turcica as shown by radiography; moreover, it is sometimes possible to discover differences of tension between the ventricular and cephalorachidian fluids. The writer has attempted to supplement his researches by experiments on monkeys, but he was unable to provoke either papillary stasis or ventricular hydrocephalus. He concludes that dilatation of the ventricles explains the pathogenesis of papillary stasis either indirectly or by the direct action of the ventricular hypertension upon the chiasm. This hypothesis, based upon the intimate embryological, anatomical and histological connections between the third ventricle and the chiasm, seems, moreover, justified by the presence, in papillary stasis, with ventricular dilatation of microscopic lesions in the chiasm.

Ocular Functions of Aviators.—WILMER (*Arch. Ophthal.*, September, 1919, p. 439) in a paper upon this subject, insists upon the necessity of absolute normality of the eyes. Affections of only passing inconvenience on the ground, such as scintillating scotoma, muscæ vôlitantes, photophobia, heterophoria and for the night flier poor dark-adaptation, are serious in the air. A successful combat pilot, with trained air vision who loses one eye, may be returned to flying status, but only when confidence is unimpaired and there is eagerness to get back. Regular eye reëxaminations should be made every two months at least. The simple visual reaction time is of great value if associated with cool determination and caution.

Primary Sarcoma of the Iris.—Primary sarcoma of the iris is an exceedingly rare growth. DeWecker, with his large experience, states that he never saw a case. Fuchs in an analysis of 259 cases of sarcoma of the uveal tract found but 16 which began in the iris. Lawford and Collins note but one primary growth of the iris in 103 cases of uveal sarcomata. FAGE (*Arch. d'ophtal.*, xxxvi, 678) reports a case of leuko-

sarcoma, a tumor even rarer than melanotic sarcoma, so that Lagrange was able to find but 8 cases in the entire literature of ophthalmology. The case reported by the author is further remarkable for rapidity of growth; in less than a year a glaucomatous attack was set up and enucleation was necessary. Generally, sarcomata of the iris develop slowly; periods of from twelve to twenty-five years have been reported. Simple excision of the tumor has given satisfactory results in some cases, but this method is uncertain. Enucleation is generally to be preferred, and in all cases in which glaucomatous attack has supervened, or there is rapid growth, or the surrounding parts invaded.

School Myopia and Emmetropization.—Dingo (*Amsterdam Thesis, Arch. d'ophtal.*, xxxvi, 700) remarks that the etiology of school myopia has not yet been sufficiently cleared up, neither by the theory of accommodation nor by that of convergence. The writer has studied the influence of the position of the pupil upon the configuration of the eye when the upright attitude is maintained with the head and body inclined forward; by means of comparative photographs the eye is pushed forward to a considerable extent in the latter position, involving traction of the globe upon the optic nerve, which will be followed by lengthening of the anteroposterior diameter of the eyeball, which involves the development of myopia.

PATHOLOGY AND BACTERIOLOGY

UNDER THE CHARGE OF

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Studies on Endothelial Reactions: The Macrophages of the Loose Connective Tissue.—Within the last twenty years, many studies of the large phagocytic mononuclear wandering cells of the body have appeared in the literature. Even more numerous have been the discussions of intravitam stains and the methods and results of their use. A number of workers have employed either the benzidine dyes in colloidal solution or various finely divided inert substances in suspension in an attempt to determine the origin of the large phagocytic mononuclear wandering cells which appear with some slight modifications of form in many sites throughout the body. Recently, Foot (*Jour. Med. Res.*, 1919, xl, 353) has brought forward an ingenious combination of the two types of intravitam stains, in an attempt to trace to its source the large mononuclear wandering phagocytic cell of the loose connective tissues. To test out the older work, in which it was claimed that the large phagocytic mononuclears were of omental or of connective-tissue origin, trypan blue was injected intraperitoneally. The administration of lampblack intravenously was carried on at the same time, in order to mark the cells should they prove to be of endothelial origin. The